



UNITED STATES PATENT AND TRADEMARK OFFICE

mw

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/013,089	12/07/2001	Jeng-Yang Pan	67,200-627	1424

7590 01/13/2004

TUNG & ASSOCIATES
838 W. Long Lake Road, Suite 120
Bloomfield Hills, MI 48302

EXAMINER

DOLAN, JENNIFER M

ART UNIT	PAPER NUMBER
----------	--------------

2813

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/013,089

Applicant(s)

PAN ET AL.

Examiner

Jennifer M. Dolan

Art Unit

2813

NW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 13-15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) 18-20 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14, 15 and 17 is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent

Publication No. 2003/0029570 to Kawamura et al.

Regarding claims 1 and 3, Kawamura discloses a housing (wafer boat (1), fig. 21) to receive a semiconductor wafer tray (6) comprising: at least 4 discrete positioning kits (portion of 2 surrounding each groove; figure 21) extending from interior sidewalls (2) of the housing (the portion of 2 surrounding each groove must inherently extend from wall 2), each kit comprising: a primary outside edge (outer vertical wall of groove (3)) at least substantially corresponding and affixed to an interior sidewall of the housing (outer vertical edge of groove affixed to support member 2); an inside edge (radially innermost portions of 2, adjoining with the groove) opposite the primary outside edge and having a groove (3) at least substantially corresponding to a part of a frame of the semiconductor wafer tray (figures 21 and 22), the groove receptive to the part of the frame of the semiconductor wafer tray to assist in maintaining the tray in a stable position when the wafer tray is completely positioned within the housing (figure 21). Kawamura further discloses that for holding each wafer tray, there are four positioning kits, with two kits positioned at the right and lefthand sides of the “back” of the housing, and two kits positioned at the right

Art Unit: 2813

and lefthand sides near the opening of the housing where the semiconductor wafer tray is inserted (figure 21), so insofar as the specific form of the sidewalls of the housing has not been specified, and insofar as posts(2) are considered to be "a sidewall of the housing," Kawamura is considered to meet the limitations of claim1.

Regarding claim 2, Kawamura discloses that each kit has an upper outside edge (portion upon which wafer tray (6) rests) facing an interior upper wall of the housing (4; figures 21 and 22) and a lower outside edge (portion of groove opposite the upper outside edge portion) facing an interior lower wall of the housing (5; figures 21 and 22)

Regarding claim 4, Kawamura discloses that the groove is shaped to mirror the part of the frame of the wafer tray to which the groove corresponds, such that the frame fits snugly inside the groove (figure 21 and paragraph 0094).

Regarding claim 5, Kawamura discloses that the groove is rectangular (figure 21).

Regarding claim 6, Kawamura discloses that the kits are C-shaped (portions of 2 surrounding each groove are C-shaped; figures 21 and 22).

Allowable Subject Matter

3. Claims 14, 15, and 17 are allowed.

4. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

Although the prior art, such as Kawamura et al., broadly suggests using the disclosed wafer boat

Art Unit: 2813

in an RTA apparatus, there is no motivation in the prior art to extend the positioning kits from the sidewalls of a quartz tube, as is required by the claims, rather than from a wafer boat housing. Since the wafer boat of Kawamura is to be loaded into an annealing apparatus, there are no means present in Kawamura to ensure the accurate positioning of the wafer within the RTA tube, but rather, the positioning kits of the wafer boat housing merely function to hold the wafer within the wafer boat. The invention as claimed, solves a specific problem of precisely positioning a wafer tray within the RTA reactor by fixing its position relative to the tube with the positioning kits, and since there is neither the motivation in the prior art to precisely position a wafer for RTA, nor is there a suggestion of fixing the positioning kits on part of the apparatus housing (i.e., the quartz tube), it is the examiner's opinion that such a modification would not have been obvious to one skilled in the art.

Response to Arguments

6. Applicant's arguments filed 10/15/03 have been fully considered but they are not persuasive.

The Applicant argues first that Kawamura does not disclose discrete positioning kits. This is not persuasive, because the applicant fails to specify exactly how the positioning kits are discrete or from what they are discrete. It is the examiner's opinion that since for each supported wafer tray, there are four distinct and unconnected grooved regions (i.e. positioning kits) supporting the tray, that the kits are considered "distinct."

The Applicant further argues that the positioning kits of Kawamura do not extend from the sidewalls so much as they are cut into the sidewalls of the columns. This is not persuasive,

Art Unit: 2813

because the positioning kits are considered to be the corrugated regions placed interior to the sidewalls, and thus, they “extend” from the sidewalls.

Regarding the Applicant’s argument that Kawamura’s boat is circular in configuration, and thus does not have defined “back” or “side” sidewalls, the examiner does not find the argument persuasive. The claims simply require that one of the positioning kits extend from “a back interior sidewall of the interior sidewalls.” A second positioning kit must extend from a first side interior sidewall, and a third must extend from a second side interior sidewall. Since the outer portions of all of the posts (2) are considered to be the “sidewalls”, and since two of these posts are located in the back of the wafer boat, one is located on the left side (first side), and one is located opposite to that on the right side (second side), the limitations are considered to be met by Kawamura. The claim language does not require a rectangular or square shaped tray, and likewise, the claim language does not place any limitations on the position or nature of the sidewalls.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,820,367 discloses a wafer boat that is part of a housing for a thermal process, the wafer boat holding wafer trays in grooves.

U.S. Patent No. 4,676,008 to Armstrong discloses a wafer boat having a contiguous wall portion connected to the grooved posts.

Art Unit: 2813

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer M. Dolan whose telephone number is (703) 305-3233. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead, Jr. can be reached on (703) 308-4940. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Jennifer M. Dolan
Examiner
Art Unit 2813

jmd


CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800